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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/991,780 | 11/26/2001 | Kenichi Hamada | 100353-00085 | 5903 |

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| EXAMINER |
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AGUSTIN, PETER VINCENT

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2652 | |

DATE MAILED: 04/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/991,780

Applicant(s)

HAMADA ET AL.

Examiner

Peter Vincent Agustin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3 and 5-13 is/are allowed.
- 6) ☒ Claim(s) 4 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to because of the following minor informalities:

Figure 7: "TRAILING" should be --TRAILING--.

Figure 9: "OPPOSITEEDGE" should be --OPPOSITE EDGE--.

Figure 13: "SAMPLER" should be --SMALLER--.

Figure 18: "SOFFSET" should be --OFFSET--.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors, e.g.,

Page 9, line 9: "Under" should be --under--.

Page 35, line 21: "sadder" should be --adder--.

Page 37, line 6: "claim 13" should be --claim 12--.

Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

4. The specification is objected to because page 3, lines 6-7 describes “the above-mentioned problems”, which lacks antecedent basis. Furthermore, the BACKGROUND OF THE INVENTION section does not include a description of the part or parts of the process, machine, manufacture, or composition of matter to which the improvement relates, and/or a description of the precise invention in such a manner as to distinguish it from other inventions and from what is old. See 37 CFR 1.71 (b) & (c).

Claim Objections

5. Claims 1, 7 & 13 objected to because of the following informalities:

Claim 1, line 16; claim 3, line 7: Delete “amount”.

Claim 7, line 2: Delete “edge”.

Claim 13, line 7: “an phase” should be --a phase--.

Appropriate correction is required.

6. Claim 1 is objected to because the preamble has awkward phraseology and needs to be rephrased. The phrase “is sampled” on the third line appears to be misplaced.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 4 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "said change state" on line 4. There is insufficient antecedent basis for this limitation in the claim, rendering the claim indefinite.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hassner et al. (US 5,638,065) discloses maximum likelihood symbol detection, and cites reference to Patel (US 4,945,538), which discloses a signal processing channel which processes an analog read signal after it is converted by an analog-to-digital converter into digitized sample values.

Nanba et al. (US 6,603,419) discloses a data reproduction device with a simplified circuit structure. Figure 2 shows a maximum likelihood decoder that outputs a leading edge value to a leading edge PLL circuit and a trailing edge value of a trailing edge PLL circuit, which PLL circuits output separate clocks.

Taguchi et al. (US 5,675,565) discloses a system for reproducing data modulated according to a predetermined partial response characteristic. Figure 1 shows a maximum likelihood decoder and figure 2 shows a central value calculating unit, reference value calculating unit, and phase error detecting unit.

Horigome et al. (US 5,682,374) discloses a recording medium having a recorded phase reference signal for fine adjustment of a phase sampling clock signal.

Yokogawa et al. (US 4,872,155) discloses a clock generator circuit and a synchronizing signal detection method in a sampled format system and a phase comparator circuit suited for generation of the clock. Figure 10 shows a clock edge selector which is used to detect offset.

Allowable Subject Matter

10. Claims 1-3 & 5-13 allowed over the prior art of record.

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11. Claim 4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

In regard to independent claim 1, no prior art of record alone or in combination discloses or suggests a clock adjusting device for use with a data reproducing apparatus for a reproduction signal from a recording medium is sampled synchronizing with a predetermined clock and data is restored in accordance with a maximum-likelihood decode algorithm corresponding to a record rule of a partial response using a sample value, said clock adjusting device comprising: a phase error detecting part detecting a phase error amount of a clock based on a state of said sample value at a first edge of said reproduction signal on a basis of a reference level; an offset detecting part detecting an offset amount of said reproduction signal; a reference level adjusting part adjusting said reference level used by said phase error amount detecting part based on said offset amount detected by said offset detecting part; and a phase adjusting part adjusting a phase of said clock based on said phase error amount detected by said phase error detecting part, wherein said **offset detecting part comprises: a monitor sample value generating part generating a monitor edge sample value based on said sample value at a second edge being an opposite side edge to said first edge of said reproduction signal; and an offset calculating part for calculating, as an offset amount, a change amount of said monitor edge sample value generated by said monitor sample value generating part based on said monitor edge sample value obtained at a predetermined timing.**

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In regard to independent claim 5, no prior art of record alone or in combination discloses or suggests an offset detecting device for detecting an offset of a reproduction signal in a data reproducing apparatus that said reproduction signal from a recording medium is sampled synchronizing with a predetermined clock and data is restored using a sample value in accordance with a maximum-likelihood decode algorithm corresponding to a record rule of a partial response, said offset detecting device comprising: **a monitor sample value generating part for generating a monitor edge sample value based on said sample value at a second edge being an opposite side edge of a first edge of said reproduction signal when said reproduction signal is sampled synchronizing with said clock which phase is adjusted to said first edge of said reproduction signal; and an offset calculating part calculating, as an offset amount of a reproduction signal, a change amount of said monitor edge sample value generated by said sample value generating part on a basis of said monitor edge sample value obtained at a predetermined timing.**

In regard to independent claim 11, no prior art of record alone or in combination discloses or suggests an apparatus for reproducing data, comprising: **a first processing part sampling a reproduction signal synchronizing with a first clock which phase is adjusted to a first edge of said reproduction signal from a recording medium, and restoring data in accordance with a maximum-likelihood decode algorithm corresponding to a record rule of a partial response by using a first sample value; and a second processing part sampling said reproduction signal synchronizing with a second clock which phase is adjusted to a second edge being an opposite side edge of said first edge of said reproduction signal, and restoring data in accordance with said maximum-likelihood decode algorithm by using a second sample**

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value, wherein said first processing part comprises: a monitor sample value generating part generating a monitor edge sample value based on said second sample value at said second edge of said reproduction signal; an offset calculating part calculating, as an offset amount, a change amount of said monitor edge sample value generated by said sample value generating part based on said monitor edge sample value obtained at a predetermined timing; and a part supplying said offset amount obtained by said offset calculating part to said second processing part, so that said first processing part and said second processing part restore data based on said reproduction signal and said offset amount.

Claims 2, 3, 6-10, 12 & 13 are allowed because they are dependent upon allowed base claims. Furthermore, claim 4 would be allowable because it is dependent upon allowed base claim 1.


13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Vincent Agustin whose telephone number is (703) 305-8980. The examiner can normally be reached on Monday thru Friday 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PVA
03/29/2004



W. H. YOUNG
PRIMARY EXAMINER